Index of Papers Published in Journal of Spacecraft and Rockets

Volume 3—January through December 1966

Issue	Pages	Issue	Pages
January	1–160	July	961–1152
February	161–288	August	1153–1312
March	289–448	September	1313–1440
April	449–608	October	1441–1568
May	609–768	November	1569–1696
June	769–960	December	1697–1824

EN, TC, and SA indicate Engineering Note, Technical Comment, and Survey Article, respectively.

AUTHORS

Abramson, H. Norman (see Kana, Daniel D.)

Achenbach, J. D. Torsional oscillations of an encased hollow cylinder of finite length ... 1637

Ackley, Avery W. (see Gustavson, Clarence)

Adams, Donald F. and Doner, Douglas R. Determining the material properties of a remote target by analyzing deceleration-time impact data ... 885

Allen, Clifford H., Jr., Doty, Arthur, B., Jr., and McCormick, Everett C. Space flight simulator for U. S. Air Force Aerospace Research Pilot School ... 793

Allinikov, Sidney A. (see Keller, Leon B.)

Allman, R. M. (see Herman, L. K.)

Almroth, B. O. (see Burns, A. Bruce)

Anand, D. K. On the performance of a heat pipe (EN) ... 763

Anderson, J. Robert, Thompson, S. A., and King, H. J. Factors in life testing ion engines ... 321

——Performance of ion engines and systems for satellite control ... 1086

——**and Work, George A.** Ion beam deflection for thrust vector control ... 1772

Anderson, John W., LaBlanc, Edward A., and Cohan, Henry. Experimental and analytical assessment of space thermal and vacuum environment simulation requirements ... 976

——(see Nelson, Richard S.)

Anderson, Ralph G. (see Mikatarian, Ronald R.)

Andrews, John S. Effects of transonic buffeting on a hammerhead-shaped payload ... 1285

Arthur, Paul D. (see Cuadra, Elizabeth)

——**Schultz, Howard D., and Guard, Frederick L.** Flat plate turbulent heat transfer at hypervelocities (EN) ... 1549

Babel, Henry W. and Kam, Clifford Y. Textured titanium in design 1779

Bachofer, B. T. Erratum: Man-in-the-loop space station navigational and control simulation (TC) ... 160

Baier, R. W., Oliver, R. C., and Stephanou, S. E. Thermodynamic considerations in selecting materials for high-temperature environments (EN) ... 948

Bailie, J. A. (see MacNeal, R. H.)

——**and McFeely, J. E.** Binary flutter of wedges in hypersonic flow (EN) ... 1130

Baily, Norman A. and Sondhaus, Charles A. Radiation dosimetry aboard manned space vehicles ... 1245

Baker, Jerome M. Orbit transfer and rendezvous maneuvers inclined between circular orbits ... 1216

Barber, John B. and Staylor, W. Frank. Investigation of secondary jets on a cone at a Mach number of 6 (EN) ... 1554

Barcatta, F. A. (see Forrester, A. Theodore)

Barnes, L. T. and Wolff, H. Special areas of rocket testing (SA) ... 289

Barnoski, R. L. (see MacNeal, R. H.)

Barr, T. A., Jr. and Mayo, R. F. "Polynomial" gas flow regulators (EN) ... 435

Barrett, W. F. (see McCown, J. W.)

——(see Norton, A. M.)

Barry D. G. (see Jones, L. R.)

Bartholomew, C. S. and Porter, D. C. Reliability and sterilization ... 1762

Bartky, Charlotte Decker and Bauer, Ernest. Predicting the emittance of a homogeneous plume containing alumina particles ... 1523

Barzda, Justin J. Rotors for recovery ... 104

Basiulis, A. (see Harbaugh, W. E.)

Battle, C. Tucker and Gottlieb, Robert G. Optimization of thrust direction histories and vehicle parameters for three-dimensional ascent trajectories ... 609

Bauer, Ernest (see Bartky, Charlotte Decker)

Bauer, Helmut F. Stability boundaries of liquid-propelled elastic space vehicles with sloshing ... 240

——Comments on "Moment of inertia and damping of liquids in baffled cylindrical tanks" (TC) ... 957

Bauer, Paul E. and Kummer, Donald L. Development and performance of the Gemini ablative heat shield ... 1495

Bauer, R. C. (see German, R. C.)

Beans, E. William. Investigation into the performance characteristics of a friction turbine ... 131

Beckham, Paul M. (see Kroeger, Richard A.)

Beer, Ferdinand P. and Lennox, William C. Determination of the survival probability of a launch vehicle rising through a random wind field ... 472

Benson, Harold E. Water impact of the Apollo spacecraft ... 1282

Benson, J. L. and Maslowe, S. A. Bluntness and boundary-layer displacement effects on hypersonic inlet flowfields ... 1394

Bert, C. W. (see Niedenfuhr, F. W.)

——**and Holt, C. R.** New configuration of central post for pressurized multicell cylindrical shells (EN) ... 1559

Beuf, F. G., Katz, G. D., and Kern, R. J. Earth entry flight test of Mars entry vehicles ... 498

Bevans, J. T. (see Nelson, K. E.)

Beveridge, J. H. (see Geery, E. L.)

Bhuta, Pravin G. and Koval, Leslie R. Decay rates of a passive precession damper and bounds ... 335

Bidwell, Jerold M. A climatology of surface temperature for engineering design (EN) ... 1305

Bien, Darl D. Configuration factors for thermal radiation from isothermal inner walls of cones and cylinders (EN) ... 155

Billet, A. B. Fluid power support systems in space explorations (EN) ... 443

Billig, Frederick S. (see Schetz, Joseph A.)

Bills, K. W., Jr., Svob, G. J., Planck, R. W., and Eriksson, T. L. A cumulative-damage concept for propellant-liner bonds in solid rocket motors ... 408

Blackman, A. W. (see Utvik, D. H.)

Blanchard, R. D. (see Lancaster, E. R.)

Blankenship, Victor D. (see Chung, Paul M.)

Blick, Edward F. (see Looney, William R.)

Block, F. G. (see Harbaugh, W. E.)

Bogdanovic, J. A. and Feder, A. Thermal environmental performance effects for paekaged liquid rockets (EN) ... 1688

Bonnell, John M. and Osborn, John R. Combustion pressure oscillations in an unmixed gas rocket motor (EN) ... 1680

Bonura, M. S. (see Secord, T. C.)

Bos, William F. Design of rockets for maximum payload energy ... 1767

Bowers, Edgar J., Jr. Requirements for onboard optical guidance of spacecraft on lunar trajectories ... 328

Bowman, Norman J. and Knippenberg, E. F. Pyrotechnic devices for use on sterilized spacecraft (EN) ... 1542

Boyd, Bemrose and Fuhrman, Thomas A. Complementary use of optical sensors and accelerometers in measuring test pad stability (EN) ... 931

Boynton, Frederick P. Composition in the far field of a rocket jet mixing with air ... 899

Braun, Willis H. (see Goldstein, Arthur W.)

Brayton, W. D. Dynamic analysis of the probe and drogue docking mechanism ... 700

Brenes, V. R. (see Dahl, P. R.)

Brock, Fred H. Relationships between average burning rate and average pressure in solid rockets (EN) ... 1802

Brogan, J. J. Impact of propellant heating on nuclear spacecraft insulation and pressurization systems design (EN) ... 932

Brown, Harold and Coates, Gordon L. Application of nuclear electric propulsion to manned Mars missions ... 1402

Bunt, E. A. Venting a ramjet missile to prevent buzz during boost by tandem rocket (EN) ... 1140

Burch, G. Thomas, Jr. (see Lundeberg, John F.)

Burns, A. Bruce and Almroth, B. O. Structural optimization of axially compressed, ring-stringer stiffened cylinders ... 19

——**and Skogh, Jorgen.** Combined loads minimum weight analysis of stiffened plates and shells ... 235

——Minimum-weight, hydrostatically compressed, ring-stiffened cones ... 387
——Structural optimization of axially compressed cylinders, considering ring-stringer eccentricity effects ... 1263
——Optimum, axially compressed, foam-core sandwich cylinders (EN) ... 1557
Burton, J. R. and Hayes, W. E. Gemini rendezvous (EN) ... 145
Bushnell, David. Axisymmetric dynamic response of a ring-supported cylinder to time-dependent loads ... 1369
Byrne, William M. Jr. Radiant heat transfer to an enclosure from two-phase flows ... 919
Camiel, Joel J. (see Wallner, Edward P.)
Campbell, D. M. (see Sampson, R. C.)
Campbell, Malcolm D., Haskins, James F., O'Barr, Gerald L., and Hertz, Julius. Thermophysical properties of reinforced plastics at cryogenic temperatures (EN) ... 596
Campbell, William O. Onboard checkout: A concept for space boosters ... 207
Capen, Edward B. (see Schneider, Alan M.)
Carlson, Robert W. and Swenson, Byron L. Maneuvering flight within earth-entry corridors at hyperbolic speeds ... 353
Cassanto, John M. Angle-of-attack measurements of a hypersonic re-entry vehicle derived from flight test pressure data (EN) ... 1685
Catherines, John J. and Stephens, David G. Effectiveness of external dampers for attenuating launch vehicle oscillations (EN) ... 1798
Cedargen, J. T., Harrington, R. E. and Riek, M. R. Recent advances in the adaptation of carbon arcs to solar simulation ... 230
Chao, George T. Y., Leslie, James C., and Mancus, Henry V. A direct measuring radiation colorimeter for determining propellant gas emissivity (EN) ... 928
Chapman, Gary T. (see Kirk, Donn B.)
Cheatham, Donald C. and Hackler, Clarke, T. Handling qualities for pilot control of Apollo lunar-landing spacecraft ... 632
Cheeseman, C. E. An experimental study of space chamber molecular kinetics ... 1235
Cheng, R. K., Meredith, C. M. and Conrad, D. A. Design considerations for surveyor guidance ... 1569
Chi, J. W. H. Forced convective boiling heat transfer to hydrogen (EN) ... 150
Chinitz, Wallace and Spadaccini, Louis. Heat transfer caused by combustion on a flat plate in supersonic flow (EN) ... 934
Chung, Paul M. and Blankenship, Victor D. Approximate analysis of an electrostatic probe for electron density measurements on re-entry vehicles ... 1715
Clements, H. R. and Ward, G. T. Fabrication of ablative liners for large solid booster nozzles ... 483
Cline, P. B. (see Dolan, C. M.)
Cloutier, Gerald J. Attitude perturbation of space vehicles by meteoroid impacts ... 523
——Crushable material energy absorbers at very high impact velocities (EN) ... 605
——Landing impact energy absorption using anisotropic crushable materials ... 1755
Coates, Gordon L. (see Brown, Harold)
Coates, R. L., Polzien, R. E., and Price, C. F. Design procedures for combustion termination by nozzle area variation ... 419
——Application of the T-burner to ballistic evaluation of new propellants (EN) ... 1793
Cohan, Henry (see Anderson, John W.)
Cohen, Arnold D. and Stein, Edward E. Ground tests of orbital storability of liquid propellants ... 1069
Collis, Ronald T. H. Use of Lidar in atmospheric research (EN) ... 599
Connor, Michael A. Gravity turn trajectories through the atmosphere (EN) ... 1308
Conrad, D. A. (see Cheng, R. K.)
Cooper, Guy F. A vertical-track free-fall system ... 839
Crawford, R. G. (see Tenney, John B.)
Crenshaw, Jack W. Unified two-body functions (EN) ... 955
Cuadra, Elizabeth and Arthur, Paul D. Orbit plane change by external burning aerocruise ... 347
Cullen, R. E. (see Nicholls, J. A.)
Curtis, Henry B. Measurement of emittance and absorptance of selected materials between 280° and 600°K ... 383
Cushman, John P. and Murphy, Robert J. Geometric considerations in the design of honeycomb sandwich fasteners (EN) ... 1686
Cutting, Elliott (see Sturms, Francis M., Jr.)
Dahl, P. R., Brenes, V. R., and Sokoloff, H. A quantized data attitude-control system ... 780
Darwell, H. M., Parker, A., and Leeming, H. Mechanical behavior of cast-double-base propellants in rocket motors ... 399
Davis, Robert E. (see Schweiker, Jerry W.)
Dawson, J. P. Prediction of cryopumping speeds in space simulation chambers ... 218
Dean, L. E. (see Valentine, R. S.)
DeBrock, Stephen C. (see Saad, Michel A.)
Decker, Wilmot H. Instrumental determination of large amounts of fluorine in oxygen (EN) ... 1296
Deerwester, Jerry M., McLaughlin, J. F., and Wolfe, J. F. Earth-departure plane change and launch window considerations for interplanetary missions ... 169
——Jupiter swingby missions to the outer planets (EN) ... 1564
Dellinger, T. C. and Hassan, H. A. Analysis of gas-particle flows in rocket nozzles (EN) ... 601
DePalma, Joseph V. and Thodos, George. Enthalpy and entropy of para-hydrogen (EN) ... 747
deSoto, S. (see Glenn, L. A.)
Devaney, R. A. (see Lancaster, E. R.)
DeWitt, R. N. Relative motion of a body about an orbiting satellite (EN) ... 1799
Diamont, E. S. (see Herold, L. M.)
Dickens, William P. (see Makofski, Robert A.)
Dickmanns, Ernst D. Note on coplanar orbit transfers by tangential impulses at apse points (EN) ... 1300
Dodge, Franklin T. and Kana, Daniel D. Moment of inertia and damping of liquids in baffled cylindrical tanks (EN) ... 153
——(see Kana, Daniel D.)
——**and Kana, Daniel D.** Reply by authors to Helmut F. Bauer (TC) ... 959
Dolan, C. M., Edighoffer, H. H., Cline, P. B., and Reinikka, E. A. Elastomeric thermal shield systems for lifting re-entry vehicles ... 867
Doner, Douglas R. (see Adams, Donald F.)
Doty, Arthur B., Jr. (see Allen, Clifford H., Jr.)
Dow, Marvin B. (see Swann, Robert T.)
Dow, Norris F. (see Rosen, B.)
Draper, C. S. The role of informetics in modern flight systems (EDITORIAL) ... 769
Draper, James Stark (see Hill, Jacques A. F.)
Drew, J. Gordon (see Lea, Robert H.)
Dropkin, David (see Pfahl, Robert C., Jr.)
Duclos, Donald P. Alternating current crossed-field plasma accelerator (EN) ... 141
Dugger, Gordon L. As spacecraft and rockets mature (EDITORIAL) ... 1
Dunn, Braxton M. and Emery, Ashley F. Thrust vectoring produced by a supersonic nozzle with an oblique exit plane ... 1500
Dunn, S. Thomas, Richmond, Joseph C., and Parmer, Jerome F. Survey of infrared measurement techniques and computational methods in radiant heat transfer (SA) ... 961
DuPont, P. S. Syncom electrical power system (EN) ... 593
Duty, R. L. Trajectory determination by linear steering (EN) ... 136
Eckhardt, Donald H. Tests of a method for making geodetic ties by observing a satellite optical beacon ... 1723
Edighoffer, H. H. (see Dolan, C. M.)
Edmiston, Richard M. (see Hall, James K.)
Edmonds, Duane S. (see Tinney, Howard C.)
Edrington, Thomas S. Probability distributions of latitudes of re-entry and impact following decay of polar orbits ... 1728
Eilenberg, S. L. (see Erway, D. D.)
Elliott, Trevor (see Rimrott, Fred P. J.)
Elmiger, R. A. In-core temperature control of NRX reactors (EN) ... 262
Ely, Olen P. and Hockenberger, Robert W. Rocket exhaust effects on radio frequency transmission ... 310
Emery, Ashley F. (see Dunn, Braxton M.)
Ericsson, Lars Eric and Reding, J. Peter. Ablation effects on vehicle dynamics ... 1476
Ericson, William B. (see Maciulaitis, Algirdas)
Eriksson, T. L. (see Bills, K. W. Jr.)
Ernstene, M. P., James, E. L., Purmal, G. W., Worlock, R. M., and Forrester, A. Theodore. Surface ionization engine development (EN) ... 744
Erway, D. D. and Eilenberg, S. L. Power conditioning for space propulsion systems using contact ion thrusters ... 561
Esker, D. W. (see Merrifield, S. E.)
Evans, William B. Development approach for an advanced orbiting solar observatory spacecraft ... 84
Eversman, Walter. Dynamics of a slowly spinning satellite in a regressing orbit ... 531
Farrell, James L. Simulation of a minimum variance orbital navigation system ... 91
——Performance of strapdown inertial attitude reference systems ... 1340
——(see Thompson, Eugene H.)
Feder, A. (see Bogdanovic, J. A.)
Fey, Wayne A. Use of a lifting upper stage to achieve large offsets during ascent to orbit ... 1425
Fine, T., Nock, R., and Sansom, R. A statistical technique for the design of missile flight test programs to measure accuracy information ... 645
Fineman, Stephen (see Glick, Robert L.)
Fiore, Anthony W. Viscosity of air (EN) ... 756
Fischer, William C. (see Lanzkron, Rolf W.)
Fisher, R. C., Hoard, H. S., and O'Nians, F. A. Radio telescope for millimeter wavelengths ... 71
Fixler, Sol Z. Satellite thermal control using phase-change materials ... 1362
Flaherty, Thomas M. (see Grodsky, Milton A.)
Flanagan, J. E. and Gray, J. C. A study of composite solid propellants containing irradiated ammonium perchlorate (EN) ... 135
Flatley, Thomas W. Burnout impulse may be thrust misalignment in disguise (EN) ... 739
Fletcher, Edward A. and Paulson, Roger A. Chamber pressure balanced piston-nozzle for fast depressurization (EN) ... 152
Ford, H. J. (see Utvik, D. H.)
Forde, J. M., Molder, Sannu, and Szpiro, E. J. Secondary liquid injection into a supersonic air-stream ... 1172
Forrester, A. Theodore (see Ernstene, M. P.)
——**and Barcatta, F. A.** Surface tension storage and feed systems for ion engines ... 1080
Fosdick, George E. and Morgenthaler, George W. A unique Mars capture probe and probe payload selection (EN) ... 142
Foster, J. M., Smith, C. B., and Vachon, R. I. On predicting thermal conductivity of a binary mixture of solids (EN) ... 287
Fowle, A. A., Gabron, F., and Vickers, J. M. F. Thermal scale modeling of spacecraft: An experimental investigation ... 577
Fox, Richard L. and Schmit, Lucien A. Jr. Advances in the integrated approach to structural synthesis ... 858
Frank, A. J., Knotts, E. F., and Johnson, B. C. An entry monitor system for maneuverable vehicles ... 1229
French, Edward P. Effect of rocket exhausts on infrared planet sensors ... 849
French, Francis W. Radiation shielding of manned Mars vehicles (EN) ... 1544
French, Kenneth E. Parachute and cushion landing system (EN) ... 1133
Fried, Erwin (see Tenney, John B.)
Friichtenicht, J. F. (see Slattery, J. C.)
Fuhrman, Thomas A. (see Boyd, Bemrose)
Fuhs, Allen E. A control device for supersonic combustion utilizing spectral intensity ratio (EN) ... 269
Gabron, F. (see Fowle, A. A.)
——**and Johnson, R. W. and Vickers, J. M. F.** Thermal scale modeling of a modified prototype of the mariner spacecraft (EN) ... 1123

Gale, Edward H. (see Gluck, Rafael)
Galman, Barry A., Levinson, M. M., and Weinstein, J. J. Solar probe orbit design ... 1002
——Minimum energy deorbit ... 1030
——Erratum: Minimum energy deorbit (TC) ... 1696
Garza, Luis R. Theoretical and experimental pressures and forces on a ring baffle under sloshing conditions (EN) ... 276
Gayle, J. B. (see Key, C. F.)
Gaz, James. Reply by author to J. L. Hunt and R. A. Jones (TC) ... 768
Geery, E. L., Thompson, W. R., Beveridge, J. H., and Helm, W. J. Nozzle tube-wall temperature measurement by radiometric techniques (EN) ... 1144
Geller, Raymond E. (see Pierson, William R.)
Gerard, George. Optimum structural design concepts for aerospace vehicles (SA) ... 5
German, R. C., Bauer, R. C., and Panesci, J. H. Methods for determining the performance of ejector-diffuser systems ... 193
Gignoux, Dominique. Electrostatic generators in space power systems (EN) ... 1803
Gilbreath, William P. and Sumsion, H. T. Solid-phase welding of metals under high vacuum ... 674
Gille, J. P. (see Gluck, D. F.)
Gilman, Bobby G. An approximate solution for shock-induced pressure rise on wedges and cones (EN) ... 1148
Glenn, E. E. (see Goldman, K. L.)
Glenn, L. A. and deSoto, S. An analog method for the solution of unsteady radiant heat-transfer problems with combined conduction and convection ... 224
Glick, Robert L. and Fineman, Stephen. Including re-entry heating in rocket engine thermal analyses (EN) ... 1561
Glover, Louis S. Approximate re-entry velocity and heating equations (EN) ... 156
Gluck, D. F., Gille, J. P., Zukosi, E. E., and Simkin, D. J. Distortion of a free surface during tank discharge (EN) ... 1691
Gluck, Rafael and Gale, Edward H. Motion of a spinning satellite during the deployment of asymmetrical appendages ... 1463
Goldman, K. L., Glenn, E. E., Lehr, S. N., and Norris, J. E. Solar simulation testing of the nuclear test detection spacecraft ... 658
Goldstein, Arthur W., Braun, Willis H., and Rose, James R. Alternating-current thermionic power diode with magnetic regeneration (EN) ... 927
Gottlieb, Robert G. (see Battle, C. Tucker)
Gordon, Robert L. Third-order orbital gyrocompass heading reference (EN) ... 954
Gowariker, V. R. Mechanical and chemical contributions to the erosion rates of graphite throats in rocket motor nozzles ... 1490
Gray, J. C. (see Flanagan, J. E.)
Greenlee, Thomas W. (see Gustavson, Clarence)
Greer, H. Propulsive performance of a cold-gas attitude-control reaction-jet system (EN) ... 429
Greiner, Leonard. Estimation of theoretical performances of torpedo propellants (EN) ... 149
——Erratum: Estimation of theoretical performance of torpedo propellants (TC) ... 608
Griest, Robert A., Jr. A large operational solar simulator (EN) ... 1292
Grodsky, Milton A., Moore, Heber G., and Flaherty, Thomas M. Crew reliability during simulated space flight ... 810
Gronner, A. D. Methods of gaging fluids under zero-g conditions ... 1058
Grosch, Charles B. (see Schmidt, Bertram, A.)
Gross, F. R. Buoyant probes into the Venus atmosphere ... 582
Grubin, Carl (see Schultz, P. R.)
Guard, Frederick L. (see Arthur, Paul D.)
Gubin, S., Marsten, R. B., and Silverman, D. Lasers vs microwaves in space communications ... 818
——(see Marsten, R. B.)
Guhse, Richard D. On secondary gas injection in supersonic nozzles (EN) ... 147
Guinn, G. R. (see Warner, C. F.)
Gustavson, Clarence, Greenlee, Thomas W., and Ackley, Avery W. Bonding of composite propellant in cast-in-case rocket motors ... 413
Gutman, Alfred S. Bubble levels as attitude sensors in satellites ... 80
Hackler, Clarke T. (see Cheatham, Donald C.)
Halbach, Carl R. (see Page, Russell J.)
Hall, James K. and Edmiston, Richard M. High-temperature c direction compressive deformation of pyrolytic graphite ... 519
Hamza, Vladimir. Computer experiments on ion beam deflection for thrust vector control (EN) ... 1304
Hanavan, Ernest P., Jr. A personalized mathematical model of the human body (EN) ... 446
Hanley, Gerald M. (see Korkan, Kenneth D.)
Hansen, D. O. (see Slattery, J. C.)
Harbaugh, W. E., Block, F. G., and Basiulis, A. Development of a reservoirless thermionic energy converter (EN) ... 1126
Harden, Darrel D. (see Walker, Bill J.)
Hardgrove, William F. (see John, James E. A.)
Harrington, R. E. (see Cedargren, J. T.)
Haskins, James F. (see Campbell, Malcolm D.)
Hassan, H. A. (see Dellinger, T. C.)
Hayes, W. E. (see Burton, J. R.)
Hayworth, B. R., White, C. W., and Miller, A. R. Energy storage capacitors for pulsed plasma thrusters (EN) ... 1534
Hefner, R. J. Review of combustion stability development with storable propellants ... 1046
Helm, W. J. (see Geery, E. L.)
Hendry, James D. Boundary-layer transition correlation for sharp slender cones (EN) ... 426
Henz, J. A. An inertially augmented radio altimeter guidance system for space booster vehicles ... 1328
Herman, L. K., Allman, R. M., and Katz, B. Guidance of the U. S. Air Force ATHENA (EN) ... 750
Herold, L. M. and Diamant, E. S. Thermal performance of cork insulation on minuteman missiles ... 679
Herron, B. G. (see Work, G. A.)
Hertz, Julius (see Campbell, Malcolm D.)
Hilderman, Richard A., Mueller, William H., and Mantus, Morton. Landing dynamics of the Lunar excursion module ... 1484
Hill, Jacques, A. F. and Draper, James Stark. Analytical approximation for the flow from a nozzle into a vacuum (EN) ... 1552
Hoard, H. S. (see Fisher, R. C.)
Hockenberger, Robert W. (see Ely, Olen P.)
Hoffner, K. W. Preliminary nozzle weight determination (EN) ... 273
Hollister, Walter M. Predicting launch dates for Mars transfer via Venus (EN) ... 925
Holloway, Paul F. (see Pritchard, E. Brian)
——Return from orbit to the continental United States (EN) ... 1808
Holman, Frank S. and Kennet, Haim. Planetary atmospheric determination utilizing a semipassive probe ... 651
Holmes, H. E. (see Strittmater, R. C.)
Holt, C. R. (see Bert, C. W.)
Hopkins, H. G., Lockett, F. J., and Vernon, J. H. C. Some studies of gravitational loads on United Kingdom solid-propellant rocket grains ... 1415
Howell, John R. and Strite, Mary Kern. Heat transfer in rocket nozzles using high-temperature hydrogen propellant with real property variations ... 1063
Hribar, V. F. A critique on internal insulation materials for solid propellant rocket motors (EN) ... 1434
Hsi, K. and Pellmann, R. R. Power systems for an unmanned lunar roving vehicle ... 1357
Huffman, J. W. and Laiacona, F. P. Composite materials for launch shell structure ... 1257
Hunt, James L. and Jones, Robert A. Comment on "Measurement of aerodynamic heating of wind-tunnel models by means of temperature-sensitive paint" (TC) ... 767
Huston, Ronald L. Twin-gyro attitude control systems (EN) ... 1136
Inger, George R. Analytical prediction of nonequilibrium heat transfer around blunt-nosed bodies (EN) ... 439
Ingram, R. J. (see Seader, J. D.)
Inouye, Toshio and Nottage, Herbert B. Experiments on rocket thrust vector control by hot gas injection (EN) ... 737
Ito, Wallace H. and Tushie, John E. P matrix guidance (EN) ... 431
Jacot, A. Dean and Liska, Donald J. Control moment gyros in attitude control ... 1313
Jaffe, Peter and Prislin, Robert H. Effect of boundary-layer transition on dynamic stability ... 46
James, E. L. (see Ernstene, M. P.)
Jamison, Dean. Uses of the trojan libration points of the earth-sun system (EN) ... 595
——Comment on probe payload selection (TC) ... 1814
Jennings, David C. Water-cooled space suit ... 1251
John, James E. A. and Hardgrove, William F. Design of an ultra-high-vacuum space simulator (EN) ... 427
Johnson, B. C. (see Frank, A. J.)
Johnson, C. E. and Mason, D. G. SNAP 8 reactor and shield designs and operating experience ... 1099
Johnson, R. W. (see Gabron, F.)
Jones, Allen. Closed-loop pitch control for spin-stabilized spacecraft 543
Jones, Ira P. (see Payne, Robert G.)
Jones, L. R. and Barry, D. G. Lightweight inflatable shadow shields for cryogenic space vehicles ... 722
Jones, Robert A. (see Hunt, James L.)
Jones, T. M. and Kruse, R. B. Failure behavior of composite hydrocarbon fuel binder propellants (EN) ... 265
Jorgensen, Leland H. Aerodynamics of planetary entry configurations in air and assumed Martian atmospheres ... 1024
Kallay, N. Experimental requirements and space station design specifications ... 854
Kam, Clifford Y. (see Babel, Henry W.)
Kana, Daniel D. and Dodge, Franklin T. Bubble behavior in liquids contained in vertically vibrated tanks (EN) ... 760
——(see Dodge, Franklin T.)
——**Lindholm, Ulric S., and Abramson, H. Norman.** An experimental study of liquid instability in a vibrating elastic tank ... 1183
Katz, B. (see Herman, L. K.)
Katz, G. D. (see Beuf, F. G.)
Keller, Leon B., Schwartz, Seymour S., Olevitch, Albert, and Allinikov, Sidney A. Space rigidized resin fiberglass sandwich materials ... 513
Kennet, Haim and Taylor, Roy A. Earth re-entry simulation of planetary entry environment ... 504
——(see Holman, Frank S.)
Kern, R. J. (see Beuf, F. G.)
Key, C. F. and Gayle, J. B. Effect of liquid nitrogen dilution on LOX impact sensitivity (EN) ... 274
King, H. J. (see Anderson, J. Robert)
King, Merrill K. Comment on "Spin effects on rocket nozzle performance" (TC) ... 1812
Kirk, Donn B. and Chapman, Gary T. Free-flight tests of a blunt-nosed flare-stabilized body at speeds to 8.2 km/sec ... 374
Knight, John W. (see Thompson, Eugene H.)
Knippenberg, E. F. (see Bowman, Norman J.)
Knotts, E. F. (see Frank, A. J.)
Knotts, Halford L. Thin-section bearings solve temperature problems (EN) ... 137
Koppang, R. R. (see Piesik, E. T.)
Korkan, Kenneth D. and Hanley, Gerald M. Apollo command module aerothermodynamic characteristics at hyperbolic earth entry velocities ... 1274
Koval, Leslie R. (see Bhuta, Pravin G.)
Kroeger, Richard A. and Beckham, Paul M. A simulation approach to the thrust stand dynamics problem ... 201
Kruse, R. B. (see Jones, T. M.)
Kuhn, Peter M. Use of radiometers on balloons for moisture determination (EN) ... 754
Kullas, A. J. What is a man-rated booster? (EN) ... 270
Kummer, Donald L. (see Bauer, Paul E.)

LaBlanc, Edward A. (see Anderson, John W.)
Laiacona, F. P. (see Huffman, J. W.)
Lancaster, E. R., Blanchard, R. C., and Devaney, R. A. A note on Lambert's theorem (EN) ... 1436
Langley, Robert A. Instrument for varying angle of incidence between ion beams and a spectrometer (EN) ... 1297
Langley, Robert W. and Woyski, Jan S. Nuclear engine clustering considerations ... 912
Lanzkron, Rolf W. and Fischer, William C. Checkout criteria and ground support equipment for the Apollo Spacecraft ... 805
Laue, Eric G. Measurement devices having potential application to solar simulation systems ... 378
Lea, Robert H., Drew, J. Gordon, and Wolf, Frank K. Analysis of cryogenic propellant logistics ... 728
Leadbetter, S. A. and Raney, J. P. Model studies of the dynamics of launch vehicles (EN) ... 936
Lee, Dah Hsuan (see Lundeberg, John F.)
Leeds, D. H. (see White, J. E.)
Leeming, H. (see Darwell, H. M.)
Lehr, S. N. (see Goldman, K. L.)
Lehrer, Stanley. Microthrust engines for the investigation of spacecraft surface heating ... 983
Leichter, H. L. Impact fracture toughness and other properties of brazed metallic laminates ... 1113
Lennox, William C. (see Beer, Ferdinand P.)
Leondes, Cornelius T. and Niemann, Robert Arthur. Optimization of aerospace re-entry vehicle trajectories through independent control of lift and drag ... 618
Leslie, James C. (see Chao, George T. Y.)
Levine, Philip. Trajectory simulation for axisymmetric planetary entry vehicles (EN) ... 1555
Levine, S. A. Explicit guidance for an oblate gravitational field ... 992
Levinson, M. M. (see Galman, Barry A.)
Lewellen, W. S. Analytic solution for fluid stratification in a gyroscope ... 1348
Lichtenfeld, K. (see Otterman, J.)
Lindholm, Ulric S. (see Kana, Daniel D.)
Liska, Donald J. (see Jacot, A. Dean)
Lockett, F. J. (see Hopkins, H. G.)
Loewy, Robert G. A Matrix-Holzer analysis for bending vibrations of clustered launch vehicles ... 1625
Looney, William R. and Blick, Edward F. Skin-friction coefficients of complaint surfaces in turbulent flow (EN) ... 1562
Luedke, E. E. (see Nelson, K. E.)
Lundeberg, John F., Lee, Dah Hsuan, and Burch, G. Thomas, Jr. Impact penetration of manned space stations ... 182
——Application of hypervelocity impact data to meteoroid barrier design (EN) ... 281
Maciulaitis, Algirdas and Ericson, William B. Comment on "Lorentz drag: An engineering approximation" (TC) ... 1312
Macklin, Martin. Oxygen reclamation from metabolic carbon dioxide ... 110
MacNeal, R. H., Barnoski, R. L., and Bailie, J. A. Response of a simple oscillator to nonstationary random noise (EN) ... 441
Maes, Michael E. (see Sutherland, George S.)
Majerus, John H. and Tamekuni, Masao. Effects of material nonlinearity and failure criteria upon solid-propellant integrity ... 393
Makofski, Robert A. and Dickens, William P. Low-altitude hypersonic flow simulation by means of a supersonic compressor ... 1644
Maltby, L. James. Design and evaluation tests of a full-scale prototype docking mechanism ... 187
Mancus, Henry V. (see Chao, George T. Y.)
Manda, Leo J. Spin effects on rocket nozzle performance (TC) ... 1695
——Reply by author to M. King (TC) ... 1813
Mann, Robert W., Marston, Charles H., and Stokes, Benjamin B. III. Control of solid propellant combustion ... 1196
Mantus, Morton (see Hilderman, Richard A.)
Marsten, R. B. (see Gubin, S.)
——**and D. Silverman and S. Gubin.** Performance of communication systems between manned spacecraft on interplanetary voyages 828
Marston, Charles H. (see Mann, Robert W.)
Martin, John J. A method of atmospheric entry scaling (EN) ... 1789
Masica, William J. Comment on "Localization of the gas-liquid interface by capillary effects" (TC) ... 768
Maslowe, S. A. (see Benson, J. L.)
Mason, D. G. (see Johnson, C. E.)
Masters, Arthur I. Applicability of flox-light hydrocarbon combinations as liquid rocket propellants ... 905
Mayo, R. F. (see Barr, T. A., Jr.)
McBrayer, James D. Pressure distributions about yawed cones and ogives (EN) ... 940
McCormick, Everett C. (see Allen, Clifford H., Jr.)
McCown, J. W., Barrett, W. F., and Norton, A. M. Design and testing of a hot redundant structure concept for a hypersonic flight vehicle ... 685
——(see Norton, A. M.)
McFeely, J. E. (see Bailie, J. A.)
McKay, Mike. Photographing a satellite from a satellite ... 1015
McLafferty, George H. Limitations on gaseous nuclear rocket I_{sp} due to nozzle coolant requirements ... 1515
McLaughlin, J. F. (see Deerwester, J. M.)
McLellan, Charles H. and Pritchard, E. Brian. Use of lift to increase payload of unmanned Martial landers ... 1421
Meirovitch, Leonard and Nelson, Harold D. On the high-spin motion of a satellite containing elastic parts ... 1597
Mentel, T. J. Study and development of simple matrix methods for inelastic structures ... 449
Meredith, C. M. (see Ribarich, J. J.)
——(see Cheng, R. K.)
Merrifield, S. E. and Esker, D. W. Propagation velocity of random light fluctuations in arc-jet exhausts ... 1510
Merrill, Phil W. A historical account of two re-entered space vehicle fragments (TC) ... 1151
Merz, Ernest J. Lander payload increase by better definition of the Mars atmosphere ... 359
Mickelsen, William R. Performance parameters for electric-propulsion systems ... 213
Mikatarian, Ronald R. and Anderson, Ralph G. An experimental investigation of a liquid jet expelled into a vacuum (EN) ... 267
Miller, A. R. (see Hayworth, B. R.)
Miller, Jacob M. Experimental investigation of the effects of elasticity on the stability of manned rotating space stations (EN) ... 943
Mills, E. S. Spacesuit systems and penalties for interplanetary missions ... 1738
Mitchell, D. H. (see Palmer, G. D.)
Moch, T. K. Determination of launch vehicle trajectory dispersions (EN) ... 1682
Molder, Sannu (see Forde, J. M.)
——**and Szpiro, Edward J.** Buseman inlet for hypersonic speeds (EN) ... 1303
Molitor, J. H., Pinckney, K. R., Seliger, R. L. Effects of reliability considerations on the design of electric thruster arrays ... 554
Montague, Leo J. (see Tinney, Howard C.)
Moore, David. Liquid-protected electrodes ... 1269
Moore, Heber G. (see Grodsky, Milton A.)
Morgenthaler, George W. (see Fosdick, George E.)
Moskowitz, Herbert. Blast effects resulting from fragmentation of an Atlas Missile ... 707
Moss, E. B. Aids to acquisition in optical communication ... 834
Mueller, William H. (see Hilderman, Richard A.)
Murphy, J. D. and Rubesin, M. W. Re-evaluation of heat-transfer data obtained in flight tests of heat-sink shielded re-entry vehicles ... 53
Murphy, J. Michael and Wall, Richard H. Effects of grain configuration upon the burning rate of a spinning rocket motor (EN) ... 263
Murphy, Robert J. (see Cushman, John P.)
Murtagh, Thomas B. A study of navigation measurement schedules for LEM rendezvous (EN) ... 278
Murthy, S. N. B. (see Thompson, H. D.)
Nagler, Robert G. Preliminary analysis of the importance of material properties and thermal inputs on heat shields for Mars entry 693
Nardacci, Joseph L. Electron levels in the after-burning region of a rocket plume (EN) ... 1146
Narin, Francis. Spatial distribution and motion of the known asteroids (EN) ... 1438
Neal, Luther Jr. Average pressure and skin friction on tapered plates in hypersonic flow (EN) ... 945
Nelson, Harold D. (see Meirovitch, Leonard)
Nelson, K. E., Luedke, E. E., and Bevans, J. T. A device for the rapid measurement of total emittance (EN) ... 758
Nelson, Richard S. and Anderson, John W. Structural-environmental tests on multilayer insulation for cryogenic space vehicles ... 989
Neumann, Temple W. Preliminary design of a Mars excursion module ... 122
——(see Opfell, John B.)
——Automated laboratories for scientific exploration of Mars ... 1749
New, John C. and Timmins, A. R. Effectiveness of environment-simulation testing for satellites ... 1711
Newton, Robert R. Dynamics of a satellite stabilized by wires ... 1469
Nicholls, J. A., Cullen, R. E., and Ragland, K. W. Feasibility studies of a rotating detonation wave rocket motor ... 893
Niedenfuhr, F. W. and Bert, C. W. Optimum design of a pressurized multicell cylindrical shell (EN) ... 752
Niehoff, John C. Gravity-assisted trajectories to solar-system targets 1351
Niemann, Robert Arthur (see Leondes, Cornelius T.)
Niemeier, Byron M. Three-impulse plane change for eccentric orbits (EN) ... 158
Nock, R. (see Fine, T.)
Norris, J. E. (see Goldman, K. L.)
Norton, A. M. (see McCown, J. W.)
——**Barrett, W. F., and McCown, J. W.** Testing philosophy for design and structural concept selection of hypersonic flight vehicles 1610
Nottage, Herbert B. (see Inouye, Toshio)
O'Barr, Gerald L. (see Campbell, Malcolm D.)
O'Brien, R. M. and Sievers, R. F. Rendezvous guidance with limited engine throttling ... 1450
Olcott, T. M. (see Smith, J. M.)
Olevitch, Albert (see Keller, Leon B.)
Oliver, R. C. (see Baier, R. W.)
Ollendorf, Stanford. Effective emittance of an insulated louver system (EN) ... 950
O'Nians, F. A. (see Fisher, R. C.)
Opfell, John B. and Neumann, Temple W. A system engineering approach to sterilization spacecraft requirements ... 1603
Osborn, John R. (see Bonnell, John M.)
Otterman, J. and Lichtenfeld, K. Effects of atmospheric drag on the position of satellites in eccentric orbits ... 547
——**and Lichtenfeld, K.** Erratum: Effects of atmospheric drag on the position of satellites in eccentric orbits (TC) ... 1814
Outman, Vernon and Wang, E. S. J. Simulation testing in a space environment—An assessment (SA) ... 1697
Page, Russell J., Halbach, Carl R., and Short, Robert A. 3-kw concentric tubular resistojet performance ... 1669
Paiewonsky, Bernard and Woodrow, Peter J. Three-dimensional time-optimal rendezvous ... 1577
Palmer, G. D. and Mitchell, D. H. Analysis and simulation of a high accuracy spacecraft separation system ... 458
Panesci, J. H. (see German, R. C.)
Parker, A. (see Darwell, H. M.)
Parmer, Jerome F. (see Dunn, S. Thomas)
——**and Wiebelt, J. A.** Thermal radiation characteristics of a specular walled groove (EN) ... 1678
Parsons, W. David. Analytic solution of the synergetic turn (EN) ... 1675
Paulson, Roger A. (see Fletcher, Edward A.)

Payne, Robert G. and Jones, Ira P. Summary of Saturn I base thermal environment ... 489
Pellmann, R. R. (see Hsi, K.)
Pengelley, C. Desmond. Preliminary survey of dynamic stability of a cable-connected spinning space station ... 1456
Peterson, H. C. and Pullen, C. L. Response of a dynamic system to a separable nonstationary random excitation (EN) ... 1299
Pfahl, Robert C. Jr. and Dropkin, David. Thermal behavior of charring cork (EN) ... 1540
Pfeiffer, C. G. (see Soong, T. T.)
Pieper, J. L. (see Valentine, R. S.)
Pierson, William R. and Geller, Raymond E. Orbital maintenance (EN) ... 941
Piesik, E. T., Koppang, R. R., and Simkin, D. J. Rocket-exhaust impingement on a flat plate at high vacuum ... 1650
Pinckney, K. R. (see Molitor, J. H.)
Pinsley, Edward A. Preliminary design considerations of a high performance Hall-current accelerator ... 1073
Planck, R. W. (see Bills, K. W., Jr.)
Polzien, R. E. (see Coates, R. L.)
Porter, D. C. (see Bartholomew, C. S.)
Price, C. F. (see Coates, R. L.)
Prislin, Robert H. (see Jaffe, Peter)
Pritchard, E. Brian and Holloway, Paul F. Application of the pitch modulation maneuver in the region of the "limiting" entry velocity 1020
——(see McLellan, Charles H.)
Pugh, Francis Leo. Terminal evasion of rendezvous ... 1592
Pullen, C. L. (see Peterson, H. C.)
Purdy, William G. Titan III core systems, integration and launch operations ... 1177
Purmal, G. W. (see Ernstene, M. P.)
Ragland, K. W. (see Nicholls, J. A.)
Ragsac, R. V. Two-vehicle Mars stopover with rendezvous ... 800
Raney, J. P. (see Leadbetter, S. A.)
Rebholz, M. J. Application of beryllium on the Agena ... 715
Reding, J. Peter (see Ericsson, Lars Eric)
Reid, G. C. (see Sohl, G.)
Reinikka, E. A. (see Dolan, C. M.)
Rennie, Bruce B. Some experimental results on docking dynamics obtained from model tests ... 34
Ribarich, J. J. and Meredith, C. M. Analysis of surveyor midcourse guidance as a problem in the theory of maxima and minima ... 997
Richmond, Joseph C. (see Dunn, S. Thomas)
Riebling, Robert W. Controlling the dimensions and orientation of impinging propellant sheets in liquid rocket engine injectors (EN) 1692
Riek, M. R. (see Cedargren, J. T.)
Rimer, M. and Sperling, H. Automatic landing system for a lunar vehicle: Guidance and control ... 639
Rimrott, Fred P. J. and Elliott, Trevor. Torsion of slit, overlapped, thin-walled tubes ... 873
Rivers, W. J. (see Seader, J. D.)
Robbins, J. H. and Rogers, A. C., Jr. An analysis on predicting thermal stratification in liquid hydrogen ... 40
Rogers, A. C., Jr. (see Robbins, J. H.)
Rolling, R. E. and Tien, C. L. Total specular reflectance of rough metallic surfaces ... 1719
Rom, Josef. Analysis of the near-wake pressure in supersonic flow using the momentum integral method ... 1504
Romero, Jacob B. Potentialities of radioisotope propulsion for space probes ... 570
Rose, James R. (see Goldstein, Arthur W.)
Rosen, B. Walter and Dow, Norris F. Influence of constituent properties upon the structural efficiency of fibrous composite shells ... 1377
Rosenman, L. (see Varwig, R. L.)
Roth, J. Reece. An open-cycle life-support system for manned interplanetary space flight (EN) ... 1791
Rubesin, M. W. (see Murphy, J. D.)
Rubin, Sheldon. Longitudinal instability of liquid rockets due to propulsion feedback (POGO) ... 1188
Rubins, P. M. Comparison of chemical history and rates for the H_2-air reaction (TC) ... 956
Rupert, R. C. (see Shieber, H.)
Saad, Michel A. and DeBrock, Stephen C. Simulation of fluid flow phenomena in propellant tanks at high and low accelerations ... 1782
Salkeld, R. J. Economic implications of extracting propellants from the moon ... 254
Sampson, R. C. and Campbell, D. M. Contributions of photoelasticity to evaluation of solid-propellant motor integrity ... 477
Sandford, John W. Design study of a one-man lunar transportation device ... 114
Sansom, R. (see Fine, T.)
Savet, Paul H. Gravity gradients: Their intrinsic representation and applications (EN) ... 1135
——Dynamics of ideal suspensions applied to rotating bodies in space ... 1335
Schetz, Joseph A. and Billig, Frederick S. Penetration of gaseous jets injected into a supersonic stream ... 1658
Schloss, Milton. Quantifying terrain roughness on lunar and planetary surfaces (EN) ... 283
Schmidt, Bertram A. and Grosch, Charles B. Analysis of a rate-sensing device ... 588
Schmit, Lucien A. Jr. (see Fox, Richard L.)
Schneider, Alan M. and Capen, Edward B. Variable point guidance for space missions ... 1202
Schultz, Howard D. (see Arthur, Paul D.)
Schultz, P. R., Soufi, Robert V., and Grubin, Carl. A boost guidance scheme for following a given trajectory and satisfying injection constraints ... 1209
Schwartz, Lawrence. On minimum-energy attitude acquisition using reaction-wheel control ... 1009
Schwartz, Seymour S. (see Keller, Leon B.)
Schweiker, Jerry W. and Davis, Robert E. Response of complex shell structures to buffeting flows ... 1617
Seader, J. D., Rivers, W. J., and Ingram, R. J. Effect of porosity zoning and matrix material on the performance of self-cooled nozzle throat inserts (EN) ... 1138
Secord, T. C. and Bonura, M. S. Life support systems data from sixty-two days of testing in a manned space laboratory simulator. 1527
Seliger, R. L. (see Molitor, J. H.)
Shair, R. C. Sealed secondary cells for space power systems ... 68
Shanklin, Richard V. III (see Young, Robert L.)
Shea, R. A. (see Summers, L. G.)
Shieber, H. and Rupert, R. C. Assurance of service life of the MIRA 150A variable thrust rocket engine ... 1034
Shields, Santos. A method for the preliminary design of radiation heat-shield panels (EN) ... 1805
Shih, C. Jet compression for closed-cycle magnetoplasmadynamic electrical power generation (EN) ... 1121
Short, Robert A. (see Page, Russell J.)
Sievers, R. F. (see O'Brien, R. M.)
Silverman, D. (see Gubin, S.)
——(see Marsten, R. B.)
Simkin, D. J. (see Piesik, E. T.)
——(see Gluck, D. F.)
Skogh, Jorgen (see Burns, A. Bruce)
Skulsky, Robert S. A conformal mapping method to predict low-speed aerodynamic characteristics of arbitrary slender re-entry shapes ... 247
Slattery, J. C., Friichtenicht, J. F., and Hansen, D. O. Ion engine arcing induced by micrometeoroids ... 1665
Slick, Edwin M. (see Spier, Edward E.)
Smith, C. B. (see Foster, J. M.)
Smith, J. M. and Olcott, T. M. A prototype two-gas regenerative life support system for advanced space missions (EN) ... 1294
Smoot, L. Douglas and Underwood, Donald L. Prediction of microwave attenuation characteristics of rocket exhausts ... 302
Snyder, C. R. Development of a titanium pressure vessel for NERVA (EN) ... 437
Sohl, G., Reid, G. C., and Speiser, R. C. Cesium electron bombardment ion engines ... 1093
Sohn, Robert L. Manned Mars trips using Venus flyby modes ... 161
Sokoloff, H. (see Dahl, P. R.)
Sondhaus, Charles A. (see Baily, Norman A.)
Soong, T. T. and Pfeiffer, C. G. Unified guidance analysis in design of space trajectories ... 98
——Preflight analysis of target errors of a space trajectory (EN) ... 139
Soufi, Robert V. (see Schultz, P. R.)
Spadaccini, Louis J. (see Chinitz, Wallace)
——Pressure gradients in a variable area liquid-propellant rocket motor (EN) ... 1128
Speiser, R. C. (see Sohl, G.)
Sperling, H. (see Rimer, M.)
Spier, Edward E., Wilson, Paul E., and Slick, Edwin M. Linear bending analysis of a thin toroidal propellant tank: A caution to designers (EN) ... 742
Stalony-Dobrzanski, Janusz. Re-entry guidance and control using temperature rate flight control system ... 1441
Staylor, W. Frank (see Barber, John B.)
Stearns, John W., Jr. Test requirements of electric propulsion systems leading to extended flight time missions (EN) ... 735
Steele, C. R. Juncture of shells of revolution ... 881
Stein, Edward E. (see Cohen, Arnold D.)
Stengel, Robert F. Wind profile measurement using lifting sensors .. 365
——Flight performance of a small, low-altitude rocket (EN) ... 938
Stephanou, S. E. (see Baier, R. W.)
Stephens, David G. Flexible baffles for slosh damping (EN) ... 765
——(see Catherines, John J.)
Stephens, James B. Space molecular sink simulator facility design. 844
Steyer, Carl C. Analysis of a thick-walled, layered anisotropic elastic cylinder subjected to a radial pressure ... 464
Stokes, Benjamin B. III (see Mann, Robert W.)
Strite, Mary Kern (see Howell, John R.)
Strittmater, R. C., Holmes, H. E., and Watermeier, L. A. Lead loss problem for a thermocouple imbedded in a burning propellant (EN) 1302
Sturms, Francis M., Jr. and Cutting, Elliott. Trajectory analysis of a 1970 mission to Mercury via a close encounter with Venus ... 624
Sullivan, Edward M. (see Zoby, Ernest V.)
Summers, L. G., Shea, R. A., and Ziedman, K. Unaided visual detection of target satellites ... 76
Sumsion, H. T. (see Gilbreath, William P.)
Surber, True E. Erratum: Heat transfer in the vicinity of surface protuberances (TC) ... 1152
Sutherland, George S. and Maes, Michael E. A review of micro-rocket technology: 10^{-6} to 1 lbf thrust (SA) ... 1153
Svob, G. J. (see Bills, K. W. Jr.)
Swann, Robert T., Dow, Marvin B., and Tompkins, Stephen S. Analysis of the effects of environmental conditions on the performance of charring ablators ... 61
Swenson, Byron L. (see Carlson, Robert W.)
Szpiro, Edward J. (see Forde, J. M.)
——(see Molder, Sannu)
Tamekuni, Masao (see Majerus, John N.)
Tannas, Lawrence E., Jr. Manual entry guidance ... 175
Taylor, Arthur J. and Wagner, John T. On-board approach guidance for a planet-orbiter ... 1731
Taylor, Robert S. A passive pendulum wobble damping system for a manned rotating space station ... 1221
Taylor, Roy A. (see Kennet, Haim)
Tenney, John B., Fried, Erwin, and Crawford, R. G. Thermal sterilization of spacecraft structures ... 1239
Thelander, John A. Aerospacecraft performance optimization considering combined airbreathing-rocket propulsion ... 339
Theobald, Richard T. Comments on "Approximate re-entry velocity and heating equations" (TC) ... 959

Thodos, George (see DePalma, Joseph V.)
Thompson, Eugene H., Farrell, James L., and Knight, John W. Alignment methods for strapdown inertial systems (EN) 1432
Thompson, H. D. and Murthy, S. N. B. Design of optimized three-dimensional nozzles 1384
Thompson, S. A. (see Anderson, J. Robert)
Thompson, W. R. (see Geery, E. L.)
Tien, C. L. (see Rolling, R. E.)
Tietze, John L. Effect of inertia product terms on satellite gravitational torques (EN) 1536
Timmins, A. R. (see New, John C.)
Tinney, Howard C., Edmonds, Duane S., and Montague, Leo J. Evaluation of multimission launch vehicle concepts 1166
Tompkins, Stephen S. (see Swann, Robert T.)
Tsongas, George A. Reverse-flow film cooling of a small rocket engine chamber (EN) 444
Tsui, Edward Y. W. Bending of tapered plates 876
——Bending characteristics of tapered cylinders 889
Tuba, I. S. Theory of beams on elastic foundation for cylindrical shells with axial ribs (EN) 952
Tushie, John E. (see Ito, Wallace H.)
Ulrich, John R. Photographic strain-measurement technique (EN) 433
Underwood, Donald L. (see Smoot, L. Douglas)
Utvik, D. H., Ford, H. J., and Blackman, A. W. Evaluation of absorption liners for suppression of combustion instability in rocket engines 1039
Vachon, R. I. (see Foster, J. M.)
Valentine, R. S., Dean, L. E., and Pieper, J. L. An improved method for rocket performance prediction 1409
Varwig, R. L. and Rosenman, L. A 7-ft-diam shock tube for transonic and supersonic aerodynamic testing (EN) 1809
Vernon, J. H. C. (see Hopkins, H. G.)
Vicente, F. A. Chemistry effects on RF attenuation during re-entry (EN) 1537
Vickers, J. M. F. (see Fowle, A. A.)
——(see Gabron, F.)
Vliet, G. C. Stratification with bottom heating (EN) 1142
Volkoff, J. J. System protection requirements for the resistance of meteoroid penetration damage 26
Wagner, John T. (see Taylor, Arthur J.)
Wagner, William E. Re-entry filtering, prediction, and smoothing 1321
Walker, Bill J. and Harden, Darrel G. Equilibrium condensation Mach numbers for some liquid metal vapors (EN) 1546
Wall, Richard H. (see Murphy J. Michael)
Wallner, Edward P. and Camiel, Joel J. Plane change split in circular orbits (EN) 603
Wang, E. S. J. (see Outman, Vernon)
Ward, G. T. (see Clements, H. R.)
Warner, C. F. and Guinn, G. R. An experiment study of liquid film cooling accomplished by dual slot injection (EN) 1547
Watermeier, L. A. (see Strittmater, R. C.)
Weiler, Frank C. Analysis of a ring on a three-dimensional elastic foundation (EN) 285
Weinstein, J. J. (see Galman, Barry A.)
Werle, Michael J. Simplified expressions for laminar heating rates on isothermal bodies (EN) 946
Whelan, James W. Digital TV bandwidth reduction techniques as applied to spacecraft television 667
Whitby, Clyde M. Image-related scanning systems for visual simulation 788
White, C. W. (see Hayworth, B. R.)
White, J. E. and Leeds, D. H. A metallurgical evaluation of various infiltrated tungsten materials in air and nitrogen plasmas 1051
Wiebelt, J. A. (see Parmer, Jerome F.)
Wilcox, James C. Self-contained orbital navigation systems with correlated measurement errors 1585
Wildey, Robert L. On terrain figures of merit for spacecraft landers (EN) 1551
Wilson, Harold W., Jr. Spark igniter for high-temperature applications (EN) 160
Wilson, Paul E. (see Spier, Edward E.)
Wolf, Frank K. (see Lea, Robert H.)
Wolfe, J. F. (see Deerwester, J. M.)
Wolff, H. (see Barnes, L. T.)
Wolff, Milo. Profiles of a planetary limb for space navigation 538
Woodrow, Peter J. (see Paiewonsky, Bernard)
Work, George A. and Herron, B. G. Power conditioning systems for ion engines 315
——(see Anderson, J. Robert)
Worlock, R. M. (see Ernstene, M. P.)
Worth, R. N. A pilot-controllable parachuse descent system for manned Mars landing vehicles (EN) 740
——Descent and landing systems for unmanned Mars entry 1744
Woyski, Jan. S. (see Langley, Robert W.)
Young, N. O. Reply by author to W. J. Masica (TC) 768
Young, Robert L. and Shanklin, Richard V. III. Thermal similarity study of a typical space vehicle element (EN) 1796
Ziedman, K. (see Summers, L. G.)
Zipkin, Morris A. Technology for large Rankine cycle space power systems 1106
Zoby, Ernest V. and Sullivan, Edward M. Effects of corner radius on stagnation-point velocity gradients on blunt axisymmetric bodies (EN) 1567
Zukoski, E. E. (see Gluck, D. F.)

SUBJECTS

AERODYNAMICS

A conformal mapping method to predict low-speed aerodynamic characteristics of arbitrary slender re-entry shapes. Robert S. Skulsky 247
Wind profile measurement using lifting sensors. Robert F. Stengel 365
Free-flight tests of a blunt-nosed flare-stabilized body at speeds to 8.2 km/sec. Donn B. Kirk and Gary T. Chapman 374
Effects of transonic buffeting on a hammerhead-shaped payload. John S. Andrews 1285
Use of a lifting upper stage to achieve large offsets during ascent to orbit. Wayne A. Fey 1425
Pressure distributions about yawed cones and ogives. James D. McBrayer (EN) 940
Parachute and cushion landing system. Kenneth E. French (EN) 1133
Busemann inlet for hypersonic speeds. Sannu Mölder and Edward J. Szpiro (EN) 1303
Angle-of-attack measurements of a hypersonic re-entry vehicle derived from flight test pressure data. John M. Cassanto (EN) 1685

AIRCRAFT

Rotors for recovery. Justin J. Barzda 104

AUXILIARY SYSTEMS

Sealed secondary cells for space power systems. R. C. Shair 68
Technology for large Rankine cycle space power systems. Morris A. Zipkin 1106
Power systems for an unmanned lunar roving vehicle. K. Hsi and R. R. Pellmann 1357
Fluid power support systems in space explorations. A. B. Billet (EN) 443
Development of a reservoirless thermionic energy converter. W. E. Harbaugh, F. G. Block, and A. Basiulis (EN) 1126

BIOSCIENCES

A system engineering approach to spacecraft sterilization requirements. John B. Opfell and Temple W. Neumann 1603
Spacesuit systems and penalties for interplanetary missions. E. S. Mills 1738
Reliability and sterilization. C. S. Bartholomew and D. C. Porter 1762
Pyrotechnic devices for use on sterilized spacecraft. Norman J. Bowman and E. F. Knippenberg (EN) 1542

BIOTECHNOLOGY

Oxygen reclamation from metabolic carbon dioxide. Martin Macklin 110
Crew reliability during simulated space flight. Milton A. Grodsky, Heber G. Moore, and Thomas M. Flaherty 810
Water-cooled space suit. David C. Jennings 1251
Life support systems data from sixty-two days of testing in a manned space laboratory simulator. T. C. Secord and M. S. Bonura 1527
A personalized mathematical model of the human body. Ernest P. Hanavan Jr. (EN) 446
Orbital maintenance. William R. Pierson and Raymond E. Geller (EN) 941
A prototype two-gas regenerative life support system for advanced space missions. J. M. Smith and T. M. Olcott (EN) 1294
An open-cycle life-support system for manned interplanetary spaceflight. J. Reece Roth (EN) 1791

CHEMISTRY

Comparison of chemical history and rates for the H_2-Air reaction. P. M. Rubins (TC) 956

COMMUNICATIONS

Digital TV bandwidth reduction techniques as applied to spacecraft television. James W. Whelan 667
Lasers vs microwaves in space communications. S. Gubin, R. B. Marsten, and D. Silverman 818
Performance of communication systems between manned spacecraft on interplanetary voyages. R. B. Marsten, D. Silverman, and S. Gubin 828
Aids to acquisition in optical communication. E. B. Moss 834

FACILITIES, RESEARCH AND SUPPORT

Special areas of rocket testing. L. T. Barnes and H. Wolff (SA) 289
Simulation testing in a space environment—An assessment. Vernon Outman and E. S. J. Wang (SA) 1697
Some experimental results on docking dynamics obtained from model tests. Bruce B. Rennie 34
Prediction of cryopumping speeds in space simulation chambers. J. P. Dawson 218
Recent advances in the adaptation of carbon arcs to solar simulation. J. T. Cedargren, R. E. Harrington, and M. R. Rick 230
A statistical technique for the design of missile flight test programs to measure accuracy information. T. Fine, R. Nock, and R. Sansom 645

Space flight simulator for U. S. Air Force Aerospace Research Pilot School. Clifford H. Allen Jr., Arthur B. Doty Jr., and Everett C. McCormick ... 793
Checkout criteria and ground support equipment for the Apollo spacecraft. Rolf W. Lanzkron and William C. Fischer ... 805
A vertical-track free-fall system. Guy F. Cooper ... 839
Space molecular sink simulator facility design. James B. Stephens ... 844
Experimental and analytical assessment of space thermal and vacuum environment simulation requirements. John W. Anderson, Edward A. LaBlanc, and Henry Cohan ... 976
An entry monitor system for maneuverable vehicles. A. J. Frank, E. F. Knotts, and B. C. Johnson ... 1229
Low-altitude hypersonic flow simulation by means of a supersonic compressor. Robert A. Makofski and William P. Dickens ... 1644
Effectiveness of environment-simulation testing for satellites. John C. New and A. R. Timmins ... 1711
Design of an ultrahigh-vacuum space simulator. James E. A. John and William F. Hardgrove (EN) ... 427
A large operational solar simulator. Robert A. Griest Jr. (EN) ... 1292
A 7-ft-diam shock tube for transonic and supersonic aerodynamic testing. R. L. Varwig and L. Rosenman (EN) ... 1809

FLUID MECHANICS

Effect of boundary-layer transition on dynamic stability. Peter Jaffe and Robert H. Prislin ... 46
Secondary liquid injection into a supersonic airstream. J. M. Forde, S. Molder, and E. J. Szpiro ... 1172
Apollo command module aerothermodynamic characteristics at hyperbolic earth entry velocities. Kenneth D. Korkan and Gerald M. Hanley ... 1274
Design of optimized three-dimensional nozzles. H. D. Thompson and S. N. B. Murthy ... 1384
Bluntness and boundary-layer displacement effects on hypersonic inlet flowfields. J. L. Benson and S. A. Maslowe ... 1394
Analysis of the near-wake pressure in supersonic flow using the momentum integral method. Josef Rom ... 1504
Penetration of gaseous jets injected into a supersonic stream. Joseph A. Schetz and Frederick S. Billig ... 1658
An experimental investigation of a liquid jet expelled into a vacuum. Ronald R. Mikatarian and Ralph G. Anderson (EN) ... 267
Boundary-layer transition correlation for sharp slender cones. James D. Hendry (EN) ... 426
Analysis of gas-particle flows in rocket nozzles. T. C. Dellinger and H. A. Hassan (EN) ... 601
Average pressure and skin friction on tapered plates in hypersonic flow. Luther Neal Jr. (EN) ... 945
An approximate solution for shock-induced pressure rise on wedges and cones. Bobby G. Gilman (EN) ... 1148
Chemistry effects on RF attenuation during re-entry. F. A. Vicente (EN) ... 1537
Equilibrium condensation Mach numbers for some liquid metal vapors. Bill J. Walker and Darrel G. Harden (EN) ... 1546
Analytical approximation for the flow from a nozzle into a vacuum. Jacques A. F. Hill and James Stark Draper (EN) ... 1552
Investigation of secondary jets on a cone at a Mach number of 6. John B. Barber and W. Frank Staylor (EN) ... 1554
Skin-friction coefficients of complaint surfaces in turbulent flow. William R. Looney and Edward F. Blick (EN) ... 1562
Distortion of a free surface during tank discharge. D. F. Gluck, J. P. Gille, E. E. Zukoski, and D. J. Simkin (EN) ... 1691
Reply by author to M. King. Leo J. Manda (TC) ... 1813

GEOPHYSICS

Tests of a method for making geodetic ties by observing a satellite optical beacon. Donald H. Eckhardt ... 1723

INSTRUMENTATION AND PHOTOGRAPHY

Radio telescope for millimeter wavelengths. R. C. Fisher, H. S. Hoard, and F. A. O'Nians ... 71
Unaided visual detection of target satellites. L. G. Summers, R. A. Shea, and K. Ziedman ... 76
Bubble levels as attitude sensors in satellites. Alfred S. Gutman ... 80
Measurement devices having potential application to solar simulation systems. Eric G. Laue ... 378
Image-related scanning systems for visual simulation. Clyde M. Whitby ... 788
Effect of rocket exhausts on infrared planet sensors. Edward P. French ... 849
Photographing a satellite from a satellite. Mike McKay ... 1015
Methods of gaging fluids under zero-G conditions. A. D. Gronner ... 1058
A device for the rapid measurement of total emittance. K. E. Nelson, E. E. Luedke, and J. T. Bevans (EN) ... 758
A direct measuring radiation calorimeter for determining propellant gas emissivity. George T. Y. Chao, James C. Leslie, and Henry V. Mancus (EN) ... 928
Complementary use of optical sensors and accelerometers in measuring test pad stability. Bemrose Boyd and Thomas A. Fuhrman (EN) ... 931
Instrument for varying angle of incidence between ion beams and a spectrometer. Robert A. Langley (EN) ... 1297

MACHINE ELEMENTS AND PROCESSES

Thin-section bearings solve temperature problems. Halford L. Knotts (EN) ... 137

MASERS

Use of Lidar in atmospheric research. Ronald T. H. Collis (EN) ... 599

MATERIALS, METALLIC

Solid-phase welding of metals under high vacuum. William P. Gilbreath and H. T. Sumsion ... 674
Application of beryllium on the Agena. M. J. Rebholz ... 715
Composite materials for launch shell structure. J. W. Huffman and F. P. Laiacona ... 1257
Textured titanium in design. Henry W. Babel and Clifford Y. Kam. 1779

MATERIALS, NONMETALLIC

High-temperature c direction compressive deformation of pyrolytic graphite. James K. Hall and Richard M. Edmiston ... 519
Thermal performance of cork insulation on minuteman missiles. L. M. Herold and E. S. Diamant ... 679
Mechanical and chemical contributions to the erosion rates of graphite throats in rocket motor nozzles. V. R. Gowariker ... 1490
Thermophysical properties of reinforced plastics at cryogenic temperatures. Malcolm D. Campbell, James F. Haskins, Gerald L. O'Barr, and Julius Hertz (EN) ... 596

MATHEMATICS

A note on Lambert's theorem. E. R. Lancaster, R. C. Blanchard, and R. A. Devaney (EN) ... 1436

METEOROLOGY

Use of radiometers on balloons for moisture determination. Peter M. Kuhn (EN) ... 754
A climatology of surface temperature for engineering design. Jerold M. Bidwell (EN) ... 1305

NAVIGATION

Simulation of a minimum variance orbital navigation system. James L. Farrell ... 91
Unified guidance analysis in design of space trajectories. T. T. Soong and C. G. Pfeiffer ... 98
Manual entry guidance. Lawrence E. Tannas Jr. ... 175
Requirements for onboard optical guidance of spacecraft on lunar trajectories. Edgar J. Bowers Jr. ... 328
Profiles of a planetary limb for space navigation. Milo Wolff ... 538
Closed-loop pitch control for spin-stabilized spacecraft. Allen Jones 543
Analysis of a rate-sensing device. Bertram A. Schmidt and Charles B. Grosch ... 588
Automatic landing system for a lunar vehicle: Guidance and control. M. Rimer and H. Sperling ... 639
Dynamic analysis of the probe and drogue docking mechanism. W. D. Brayton ... 700
The role of informetics in modern flight systems. C. S. Draper ... 769
A quantized data attitude-control system. P. R. Dahl, V. R. Brenes, and H. Sokoloff ... 780
Explicit guidance for an oblate gravitational field. S. A. Levine ... 992
Analysis of surveyor midcourse guidance as a problem in the theory of maxima and minima. J. J. Ribarich and C. M. Meredith ... 997
On minimum-energy attitude acquistion using reaction-wheel control. Lawrence Schwartz ... 1009
Application of the pitch modulation maneuver in the region of the "limiting" entry velocity. E. Brian Pritchard and Paul F. Holloway ... 1020
Variable point guidance for space missions. Alan M. Schneider and Edward B. Capen ... 1202
A boost guidance scheme for following a given trajectory and satisfying injection constraints. P. R. Schultz, Robert V. Soufl, and Carl Grubin ... 1209
A passive pendulum wobble damping system for a manned rotating space station. Robert S. Taylor ... 1221
Control moment gyros in attitude control. A. Dean Jacot and Donald J. Liska ... 1313
Re-entry filtering, prediction, and smoothing. William E. Wagner ... 1321
An inertially augmented radio altimeter guidance system for space booster vehicles. J. A. Henz ... 1328
Dynamics of ideal suspensions applied to rotating bodies in space. Paul H. Savet ... 1335
Performance of strapdown inertial attitude reference systems. James L. Farrell ... 1340

Analytic solution for fluid stratification in a gyroscope. W. S. Lewellen ... 1348
Gravity-assisted trajectories to solar-system targets. John C. Niehoff ... 1351
Re-entry guidance and control using temperature rate flight control system. Janusz Stalony-Dobrzanski ... 1441
Rendezvous guidance with limited engine throttling. R. M. O'Brien and R. F. Sievers ... 1450
Preliminary survey of dynamic stability of a cable-connected spinning space station. C. Desmond Pengelley ... 1456
Motion of a spinning satellite during the deployment of asymmetrical appendages. Rafael Gluck and Edward H. Gale ... 1463
Dynamics of a satellite stabilized by wires. Robert R. Newton ... 1469
Design considerations for surveyor guidance. R. K. Cheng, C. M. Meredith, and D. A. Conrad ... 1569
Self-contained orbital navigation systems with correlated measurement errors. James C. Wilcox ... 1585
Terminal evasion of rendezvous. Francis Leo Pugh ... 1592
On the high-spin motion of a satellite containing elastic parts. Leonard Meirovitch and Harold D. Nelson ... 1597
On-board approach guidance for a planet-orbiter. Arthur J. Taylor and John T. Wagner ... 1731
Trajectory determination by linear steering. R. L. Duty (EN) ... 136
Preflight analysis of target errors of a space trajectory. T. T. Soong (EN) ... 139
Gemini rendezvous. J. R. Burton and W. E. Hayes (EN) ... 145
A study of navigation measurement schedules for LEM rendezvous. Thomas B. Murtagh (EN) ... 278
P matrix guidance. Wallace H. Ito and John E. Tushie (EN) ... 431
Guidance of the U. S. Air Force ATHENA. L. K. Herman, R. M. Allman, and B. Katz (EN) ... 750
Third-order oribital gyrocompass heading reference. Robert L. Gordon (EN) ... 954
Gravity gradients: Their intrinsic representation and applications. Paul H. Savet (EN) ... 1135
Twin-gyro attitude control systems. Ronald L. Huston (EN) ... 1136
Alignment methods for strapdown inertial systems. Eugene H. Thompson, James L. Farrell, and John W. Knight (EN) ... 1432
Effect of inertia product terms on satellite gravitational torques. John L. Tietze (EN) ... 1536
Erratum: Man-in-the-loop space station navigational and control simulation. B. T. Bachofer (TC) ... 160

NUCLEAR ENGINEERING

Potentialities of radioisotope propulsion for space probes. Jacob B. Romero ... 570
Solar simulation testing of the nuclear test detection spacecraft. K. L. Goldman, E. E. Glenn, S. N. Lehr, and J. E. Norris ... 658
SNAP 8 reactor and shield designs and operating experience. C. E. Johnson and D. G. Mason ... 1099
In-core temperature control of NRX reactors. R. A. Elmiger (EN) ... 262

PHYSICS, GENERAL

Viscosity of air. Anthony W. Fiore (EN) ... 756
Bubble behavior in liquids contained in vertically vibrated tanks. Daniel D. Kana and Franklin T. Dodge (EN) ... 760
Comment on "Localization of the gas-liquid interface by capillary effects." William J. Masica (TC) ... 768
Reply by author to W. J. Masica. N. O. Young (TC) ... 768

PHYSICS, ATOMIC, MOLECULAR, AND NUCLEAR

An experimental study of space chamber molecular kinetics. C. E. Cheeseman ... 1235

PHYSICS, PLASMA

A metallurgical evaluation of various infiltrated tungsten materials in air and nitrogen plasmas. J. E. White and D. H. Leeds ... 1051
Preliminary design considerations of a high performance Hall-current accelerator. Edward A. Pinsley ... 1073
Surface tension storage and feed systems for ion engines. A. Theodore Forrester and F. A. Barcatta ... 1080
Cesium electron bombardment ion engines. G. Sohl, G. C. Reid, and R. C. Speiser ... 1093
Propagation velocity of random light fluctuations in arc-jet exhausts. S. E. Merrifield and D. W. Esker ... 1510
Approximate analysis of an electrostatic probe for electron density measurements on re-entry vehicles. Paul M. Chung and Victor D. Blankenship ... 1715
Alternating current crossed-field plasma accelerator. Donald P. Duclos (EN) ... 141
"Polynomial" gas flow regulators. T. A. Barr Jr. and R. F. Mayo (EN) ... 435
Alternating-current thermionic power diode with magnetic regeneration. Arthur W. Goldstein, Willis H. Braun, and James R. Rose (EN) ... 927
Jet compression for closed-cycle magnetoplasmadynamic electrical power generation. C. Shih (EN) ... 1121
Energy storage capacitors for pulsed plasma thrusters. B. R. Hayworth, C. W. White, and A. R. Miller (EN) ... 1534
Electrostatic generators in space power systems. Dominique Gignoux (EN) ... 1803
Comment on "Lorentz drag: An engineering approximation". Algirdas Maciulaitis and William B. Ericson (TC) ... 1312

PROPELLANTS

An analysis on predicting thermal stratification in liquid hydrogen. J. H. Robbins and A. C. Rogers Jr. ... 40
Stability boundaries of liquid-propelled elastic space vehicles with sloshing. Helmut F. Bauer ... 240
Economic implications of extracting propellants from the moon. R. J. Salkeld ... 254
Effects of material nonlinearity and failure criteria upon solid-propellant integrity. John N. Majerus and Masao Tamekuni ... 393
Mechanical behavior of cast-double-base propellants in rocket motors. H. M. Darwell, A. Parker, and H. Leeming ... 399
Bonding of composite propellant in cast-in-case rocket motors. Clarence Gustavson, Thomas W. Greenlee, and Avery W. Ackley ... 413
Blast effects resulting from fragmentation of an Atlas missile. Herbert Moskowitz ... 707
Analysis of cryogenic propellant logistics. Robert H. Lea, J. Gordon Drew, and Frank K. Wolf ... 728
Applicability of flox-light hydrocarbon combinations as liquid rocket propellants. Arthur I. Masters ... 905
Ground tests of orbital storability of liquid propellants. Arnold D. Cohen and Edward E. Stein ... 1069
Control of solid propellant combustion. Robert W. Mann, Charles H. Marston, and Benjamin B. Stokes III ... 1196
Some studies of gravitational loads on United Kingdom solid-propellant rocket grains. H. G. Hopkins, F. J. Lockett, and J. H. C. Vernon ... 1415
Predicting the emittance of a homogeneous plume containing alumina particles. Charlotte Decker Bartky and Ernest Bauer ... 1523
Simulation of fluid flow phenomena in propellant tanks at high and low accelerations. Michel A. Saad and Stephen C. DeBrock ... 1782
A study of composite solid propellants containing irradiated ammonium perchlorate. J. E. Flanagan and J. C. Gray (EN) ... 135
Estimation of theoretical performances of torpedo propellants. Leonard Greiner (EN) ... 149
Chamber pressure balanced piston-nozzle for fast depressurization. Edward A. Fletcher and Roger A. Paulson (EN) ... 152
Spark igniter for high-temperature applications. Harold W. Wilson Jr. (EN) ... 160
Failure behavior of composite hydrocarbon fuel binder propellants. T. M. Jones and R. B. Kruse (EN) ... 265
Effect of liquid nitrogen dilution on LOX impact sensitivity. C. F. Key and J. B. Gayle (EN) ... 274
On predicting thermal conductivity of a binary mixture of solids. J. M. Foster, C. B. Smith, and R. I. Vachon (EN) ... 287
Photographic strain-measurement technique. John R. Ulrich (EN) ... 433
Enthalpy and entropy of para-hydrogen. Joseph V. DePalma and George Thodos (EN) ... 747
Impact of propellant heating on nuclear spacecraft insulation and pressurization systems design. J. J. Brogan (EN) ... 932
Instrumental determination of large amounts of fluorine in oxygen. Wilmot H. Decker (EN) ... 1296
Lead loss problem for a thermocouple imbedded in a burning propellant. R. C. Strittmater, H. E. Holmes, and L. A. Watermeier (EN) ... 1302
Thermal environmental performance effects for packaged liquid rockets. J. A. Bogdanovic and A. Feder (EN) ... 1688
Controlling the dimensions and orientation of impinging propellant sheets in liquid rocket engine injectors. Robert W. Riebling (EN) 1692
Application of the T-burner to ballistic evaluation of new propellants. R. L. Coates (EN) ... 1793
Erratum: Estimation of theoretical performances of torpedo propellants. Leonard Greiner (TC) ... 608

PROPULSION SYSTEMS

review of microrocket technology: 10^{-6} to 1 lbf thrust. George S. Sutherland and Michael E. Maes (SA) ... 1153
Investigation into the performance characteristics of a friction turbine. E. William Beans ... 131
Methods for determining the performance of ejector-diffuser systems. R. C. German, R. C. Bauer, and J. H. Panesci ... 193
A simulation approach to the thrust stand dynamics problem. Richard A. Kroeger and Paul M. Beckham ... 201
Performance parameters for electric-propulsion systems. William R. Mikelsen ... 213
Prediction of microwave attenuation characteristics of rocket exhausts. L. Douglas Smoot and Donald L. Underwood ... 302
Rocket exhaust effects on radio frequency transmission. Olen P. Ely and Robert W. Hockenberger ... 310
Power conditioning systems for ion engines. G. A. Work and B. G. Herron ... 315
Factors in life testing ion engines. J. R. Anderson, S. A. Thompson, and H. J. King ... 321
Aerospacecraft performance optimization considering combined airbreathing-rocket propulsion. John A. Thelander ... 339
A cumulative-damage concept for propellant-liner bonds in solid rocket motors. K. W. Bills Jr., G. J. Svob, R. W. Planck, and T. L. Eriksson ... 408
Contributions of photoelasticity to evaluation of solid-propellant motor integrity. R. C. Sampson and D. M. Campbell ... 477
Fabrication of ablative liners for large solid booster nozzles. H. R. Clements and G. T. Ward ... 483

Summary of Saturn I base thermal environment. Robert G. Payne and Ira P. Jones ... 489
Effects of reliability considerations on the design of electric thruster arrays. J. H. Molitor, K. R. Pinckney, and R. L. Seliger ... 554
Power conditioning for space propulsion systems using contact ion thrusters. D. D. Erway and S. L. Eilenberg ... 561
Feasibility studies of a rotating detonation wave rocket motor. J. A. Nicholls, R. E. Cullen, and K. W. Ragland ... 893
Composition in the far field of a rocket jet mixing with air. Frederick P. Boynton ... 899
Nuclear engine clustering considerations. Robert W. Langley and Jan S. Woyski ... 912
Microthrust engines for the investigation of spacecraft surface heating. Stanley Lehrer ... 983
Assurance of service life of the MIRA 150A variable thrust rocket engine. H. Shieber and R. C. Rupert ... 1034
Performance of ion engines and systems for satellite control. J. R. Anderson ... 1086
Longitudinal instability of liquid rockets due to propulsion feedback (POGO). Sheldon Rubin ... 1188
Liquid-protected electrodes. David Moore ... 1269
Application of nuclear electric propulsion to manned Mars missions. Harold Brown and Gordon L. Coates ... 1402
An improved method for rocket performance prediction. R. S. Valentine, L. E. Dean, and J. L. Pieper ... 1409
Thrust vectoring produced by a supersonic nozzle with an oblique exit plane. Braxton M. Dunn and Ashley F. Emery ... 1500
Limitations on gaseous nuclear rocket I_{sp} due to nozzle coolant requirements. George H. McLafferty ... 1515
Rocket-exhaust impingement on a flat plate at high vacuum. E. T. Piesik, R. R. Koppang, and D. J. Simkin ... 1650
Ion engine arcing induced by micrometeoroids. J. C. Slattery, J. F. Friichtenicht, and D. O. Hansen ... 1665
3-kw concentric tubular resistojet performance. Russell J. Page, Carl R. Halbach, and Robert A. Short ... 1669
Ion beam deflection for thrust vector control. J. Robert Anderson and George A. Work ... 1772
On secondary gas injection in supersonic nozzles. Richard D. Guhse (EN) ... 147
Effects of grain configuration upon the burning rate of a spinning rocket motor. J. Michael Murphy and Richard H. Wall (EN) ... 263
Preliminary nozzle weight determination. K. W. Hoffner (EN) ... 273
Propulsive performance of a cold-gas attitude-control reaction-jet system. H. Greer (EN) ... 429
Reverse-flow film cooling of a small rocket engine chamber. George A. Tsongas (EN) ... 444
Syncom electrical power system. P. S. DuPont (EN) ... 593
Test requirements of electric propulsion systems leading to extended flight time missions. John W. Stearns Jr. (EN) ... 735
Experiments on rocket thrust vector control by hot gas injection. Toshio Inouye and Herbert B. Nottage (EN) ... 737
Surface ionization engine development. M. P. Ernstene, E. L. James, G. W. Purmal, R. M. Worlock, and A. T. Forrester (EN) ... 744
Pressure gradients in a variable area liquid-propellant rocket motor. Louis J. Spadaccini (EN) ... 1128
Effect of porosity zoning and matrix material on the performance of self-cooled nozzle throat inserts. J. D. Seader, W. J. Rivers, and R. J. Ingram (EN) ... 1138
Venting a ramjet missile to prevent buzz during boost by tandem rocket. E. A. Bunt (EN) ... 1140
Computer experiments on ion beam deflection for thrust vector control. Vladimir Hamza (EN) ... 1304
Spin effects on rocket nozzle performance. Leo J. Manda (TC) ... 1695
Comment on "Spin effects on rocket nozzle performance." Merrill K. King (TD) ... 1812

SPACE RADIATION

Radiation dosimetry aboard manned space vehicles. Norman A. Baily and Charles A. Sondhaus ... 1245
Radiation shielding of manned Mars vehicles. Francis W. French (EN) ... 1544

SPACE SCIENCES

Orbit plane change by external burning aeromaneuver. Elizabeth Cuadra and Paul D. Arthur ... 347
Maneuvering flight within earth-entry corridors at hyperbolic speeds. Robert W. Carlson and Byron L. Swenson ... 353
Earth re-entry simulation of planetary entry environment. Haim Kennet and Roy A. Taylor ... 504
Dynamics of a slowly spinning satellite in a regressing orbit. Walter Eversman ... 531
Effects of atmospheric drag on the position of satellites in eccentric orbits. J. Otterman and K. Lichtenfeld ... 547
Buoyant probes into the Venus atmosphere. F. R. Gross ... 582
Optimization of thrust direction histories and vehicle parameters for three-dimensional ascent trajectories. C. Tucker Battle and Robert G. Gottlieb ... 609
Optimization of aerospace re-entry vehicle trajectories through independent control of lift and drag. Cornelius T. Leondes and Robert Arthur Niemann ... 618
Trajectory analysis of a 1970 mission to Mercury via a close encounter with Venus. Francis M. Sturms Jr. and Elliott Cutting ... 624
Planetary atmospheric determination utilizing a semipassive probe. Frank S. Holman and Haim Kennet ... 651
Two-vehicle Mars stopover with rendezvous. R. V. Ragsac ... 800
Aerodynamics of planetary entry configurations in air and assumed Martian atmospheres. Leland H. Jorgensen ... 1024
Minimum energy deorbit. Barry A. Galman ... 1030
Orbit transfer and rendezvous maneuvers between inclined circular orbits. Jerome M. Baker ... 1216
Three-dimensional time-optimal rendezvous. Bernard Paiewonsky and Peter J. Woodrow ... 1577
Probability distributions of latitudes of re-entry and impact following decay of polar orbits. Thomas S. Edrington ... 1728
Automated laboratories for scientific exploration of Mars. Temple W. Neumann ... 1749
Three-impulse plane change for eccentric orbits. Byron M. Niemeier (EN) ... 158
Quantifying terrain roughness on lunar and planetary surfaces. Milton Schloss (EN) ... 283
Uses of the trojan libration points of the earth-sun system. Dean Jamison (EN) ... 595
Plane change split in circular orbits. Edward P. Wallner and Joel J. Camiel (EN) ... 603
Predicting launch dates for Mars transfer via Venus. Walter M. Hollister (EN) ... 925
Unified two-body functions. Jack W. Crenshaw (EN) ... 955
Note on coplanar orbit transfers by tangential impulses at apse points. Ernst D. Dickmanns (EN) ... 1300
Gravity turn trajectories through the atmosphere. Michael A. Connor (EN) ... 1308
Spatial distribution and motion of the known asteroids. Francis Narin (EN) ... 1438
On terrain figures of merit for spacecraft landers. Robert L. Wildey (EN) ... 1551
Trajectory simulation for axisymmetric planetary entry vehicles. Philip Levine (EN) ... 1555
Jupiter swingby missions to the outer planets. Jerry M. Deerwester (EN) ... 1564
Analytic solution of the synergetic turn. W. David Parsons (EN) ... 1675
Determination of launch vehicle trajectory dispersions. T. K. Moch (EN) ... 1682
A method of atmospheric entry scaling. John J. Martin (EN) ... 1789
Return from orbit to the continental United States. Paul F. Holloway (EN) ... 1808
Relative motion of a body about an orbiting satellite. R. N. DeWitt (EN) ... 1799
Erratum: Minimum energy deorbit. Barry A. Galman (TC) ... 1696
Erratum: Effects of atmospheric drag on the position of satellites in eccentric orbits. J. Otterman and K. Lichtenfeld (TC) ... 1814

SPACE VEHICLES

Development approach for an advanced orbiting solar observatory spacecraft. William B. Evans ... 84
Design study of a one-man lunar transportation device. John W. Sandford ... 114
Preliminary design of a Mars excursion module. Temple W. Neumann ... 122
Manned Mars trips using Venus flyby modes. Robert L. Sohn ... 161
Earth-departure plane change and launch window considerations for interplanetary missions. J. M. Deerwester, J. F. McLaughlin, and J. F. Wolfe ... 169
Design and evaluation tests of a full-scale prototype docking mechanism. L. James Maltby ... 187
Onboard checkout: A concept for space boosters. William O. Campbell ... 207
Lander payload increase by better definition of the Mars atmosphere. Ernest J. Merz ... 359
Analysis and simulation of a high accuracy spacecraft separation system. G. D. Palmer and D. H. Mitchell ... 458
Earth entry flight test of Mars entry vehicles. F. G. Beuf, G. D. Katz, and R. J. Kern ... 498
Attitude perturbation of space vehicles by meteoroid impacts. Gerald J. Cloutier ... 523
Thermal scale modeling of spacecraft: An experimental investigation. A. A. Fowle, F. Gabron, and J. M. F. Vickers ... 577
Handling qualities for pilot control of Apollo lunar-landing spacecraft. Donald C. Cheatham and Clarke T. Hackler ... 632
Experimental requirements and space station design specifications. N. Kallay ... 854
Solar probe orbit design. B. A. Galman, M. M. Levinson, and J. J. Weinstein ... 1002
Evaluation of multimission launch vehicle concepts. Howard C. Tinney, Duane S. Edmonds, and Leo J. Montague ... 1166
Titan III core systems, integration and launch operations. William G. Purdy ... 1177
Water impact of the Apollo spacecraft. Harold E. Benson ... 1282
Use of lift to increase payload of unmanned Martian landers. Charles H. McLellan and E. Brian Pritchard ... 1421
Landing dynamics of the Lunar excursion module. Richard A. Hilderman, William H. Mueller, and Morton Mantus ... 1484
Descent and landing systems for unmanned Mars entry. R. N. Worth ... 1744
Design of rockets for maximum payload energy. William F. Bos ... 1767
A unique Mars capture probe and probe payload selection. George E. Fosdick and George W. Morgenthaler (EN) ... 142
What is a man-rated booster? A. J. Kullas (EN) ... 270
Burnout impulse may be thrust misalignment in disguise. Thomas W. Flatley (EN) ... 739
A pilot-controllable parachute descent system for manned Mars landing vehicles. R. N. Worth (EN) ... 740
Flight performance of a small, low-altitude rocket. Robert F. Stengel (EN) ... 938
Effectiveness of external dampers for attenuating launch vehicle oscillations. John J. Catherines and David G. Stephens (EN) ... 1798
A historical account of two re-entered space vehicle fragments. Phil W. Merrill (TC) ... 1151
Comment on probe payload selection. Dean Jamison (TC) ... 1814

STRUCTURAL MECHANICS

Optimum structural design concepts for aerospace vehicles. George Gerard (SA) ... 5
Structural optimization of axially compressed, ring-stringer stiffened cylinders. A. Bruce Burns and B. O. Almroth ... 19
System protection requirements for the resistance of meteoroid penetration damage. J. J. Volkoff ... 26
Impact penetration of manned space stations. John F. Lundeberg, Dah Hsuan Lee, and G. Thomas Burch Jr. ... 182
Combined loads minimum weight analysis of stiffened plates and shells. A. Bruce Burns and Jörgen Skogh ... 235
Decay rates of a passive precession damper and bounds. Pravin G. Bhuta and Leslie R. Koval ... 335
Minimum-weight, hydrostatically compressed, ring-stiffened cones. A. Bruce Burns ... 387
Study and development of simple matrix methods for inelastic structures. T. J. Mentel ... 449
Analysis of a thick-walled, layered anisotropic elastic cylinder subjected to a radial pressure. Carl C. Steyer ... 464
Determination of the survival probability of a launch vehicle rising through a random wind field. Ferdinand P. Beer and William C. Lennox ... 472
Space rigidized resin fiberglass sandwich materials. Leon B. Keller, Seymour S. Schwartz, Albert Olevitch, and Sidney A. Allinikov ... 513
Design and testing of a hot redundant structure concept for a hypersonic flight vehicle. J. W. McCown, W. F. Barrett, and A. M. Norton ... 685
Advances in the integrated approach to structural synthesis. Richard L. Fox and Lucien A. Schmit Jr. ... 858
Torsion of slit, overlapped, thin-walled tubes. Fred P. J. Rimrott and Trevor Elliott ... 873
Bending of tapered plates. Edward Y. W. Tsui ... 876
Juncture of shells of revolution. C. R. Steele ... 881
Determining the material properties of a remote target by analyzing deceleration-time impact data. Donald F. Adams and Douglas R. Doner ... 885
Bending characteristics of tapered cylinders. Edward Y. W. Tsui ... 889
Structural-environmental tests on multilayer insulation for cryogenic space vehicles. Richard S. Nelson and John W. Anderson ... 989
Impact fracture toughness and other properties of brazed metallic laminates. H. L. Leichter ... 1113
An experimental study of liquid instability in a vibrating elastic tank. Daniel D. Kana, Ulric S. Lindholm, and H. Norman Abramson ... 1183
Structural optimization of axially compressed cylinders, considering ring-stringer eccentricity effects. A. Bruce Burns ... 1263
Axisymmetric dynamic response of a ring-supported cylinder to time-dependent loads. David Bushnell ... 1369
Influence of constituent properties upon the structural efficiency of fibrous composite shells. B. Walter Rosen and Norris F. Dow ... 1377
Testing philosophy for design and structural concept selection of hypersonic flight vehicles. A. M. Norton, W. F. Barrett, and J. W. McCown ... 1610
Response of complex shell structures to buffeting flows. Jerry W. Schweiker and Robert E. Davis ... 1617
A Matrix-Holzer analysis for bending vibrations of clustered launch vehicles. Robert G. Loewy ... 1625
Torsional oscillations of an encased hollow cylinder of finite length. J. D. Achenbach ... 1637
Landing impact energy absorption using anisotropic crushable materials. Gerald J. Cloutier ... 1755
Moment of inertia and damping of liquids in baffled cylindrical tanks. Franklin T. Dodge and Daniel D. Kana (EN) ... 153
Theoretical and experimental pressures and forces on a ring baffle under sloshing conditions. Luis R. Garza (EN) ... 276
Application of hypervelocity impact data to meteoroid barrier design. J. F. Lundeberg (EN) ... 281
Analysis of a ring on a three-dimensional elastic foundation. Frank C. Weiler (EN) ... 285
Development of a titanium pressure vessel for NERVA. C. R. Snyder (EN) ... 437
Response of a simple oscillator to nonstationary random noise. R. H. MacNeal, R. L. Barnoski, and J. A. Bailie (EN) ... 441
Crushable material energy absorbers at very high impact velocities. Gerald J. Cloutier (EN) ... 523
Linear bending analysis of a thin toroidal propellant tank: A caution to designers. Edward E. Spier, Paul E. Wilson, and Edwin M. Slick (EN) ... 742
Optimum design of a pressurized multicell cylindrical shell. F. W. Niedenfuhr and C. W. Bert (EN) ... 752
Flexible baffles for slosh damping. David G. Stephens (EN) ... 765
Model studies of the dynamics of launch vehicles. S. A. Leadbetter and J. P. Raney (EN) ... 936
Experimental investigation of the effects of elasticity on the stability of manned rotating space stations. Jacob M. Miller (EN) ... 943
Theory of beams on elastic foundation for cylindrical shells with axial ribs. I. S. Tuba (EN) ... 952
Binary flutter of wedges in hypersonic flow. J. A. Bailie and J. E. McFeely (EN) ... 1130
Response of a dynamic system to a separable nonstationary random excitation. H. C. Peterson and C. L. Pullen (EN) ... 1299
Optimum, axially compressed, foam-core sandwich cylinders. A. Bruce Burns (EN) ... 1557
New configuration of central post for pressurized multicell cylindrical shells. C. W. Bert and C. R. Holt (EN) ... 1559
Geometric considerations in the design of honeycomb sandwich fasteners. John P. Cushman and Robert J. Murphy (EN) ... 1686
Comments on "Moment of inertia and damping of liquids in baffled cylindrical tanks." Helmut F. Bauer (TC) ... 957
Reply by authors to Helmut F. Bauer. F. T. Dodge and D. D. Kana (TC) ... 959

THERMODYNAMICS AND COMBUSTION

Survey of infrared measurement techniques and computational methods in radiant heat transfer. S. Thomas Dunn, Joseph C. Richmond, and Jerome F. Parmer (SA) ... 961
Re-evaluation of heat-transfer data obtained in flight tests of heat-sink shielded re-entry vehicles. J. D. Murphy and M. W. Rubesin ... 53
Analysis of the effects of environmental conditions on the performance of charring ablators. Robert T. Swann, Marvin B. Dow, and Stephen S. Tompkins ... 61
An analog method for the solution of unsteady radiant heat-transfer problems with combined conduction and convection. L. A. Glenn and S. deSoto ... 224
Measurement of emittance and absorptance of selected materials between 280° and 600° K. Henry B. Curtis ... 383
Design procedures for combustion termination by nozzle area variation. R. L. Coates, R. E. Polzien, and C. F. Price ... 419
Preliminary analysis of the importance of material properties and thermal inputs on heat shields for Mars entry. Robert G. Nagler ... 693
Lightweight inflatable shadow shields for cryogenic space vehicles. L. R. Jones and D. G. Barry ... 722
Elastomeric thermal shield systems for lifting re-entry vehicles. C. M. Dolan, H. H. Edighoffer, P. B. Cline, and E. A. Reinikka ... 867
Radiant heat transfer to an enclosure from two-phase flows. William M. Bryne Jr. ... 919
Evaluation of absorption liners for suppression of combustion instability in rocket engines. D. H. Utvik, H. J. Ford, and A. W. Blackman ... 1039
Review of combustion stability development with storable propellants. R. J. Hefner ... 1046
Heat transfer in rocket nozzles using high-temperature hydrogen propellant with real property variations. John R. Howell and Mary Kern Strite ... 1063
Thermal sterilization of spacecraft structures. John B. Tenney, Erwin Fried, and R. G. Crawford ... 1239
Satellite thermal control using phase-change materials. Sol Z. Fixler ... 1362
Ablation effects on vehicle dynamics. Lars Eric Ericsson and J. Peter Reding ... 1476
Development and performance of the Gemini ablative heat shield. Paul E. Bauer and Donald L. Kummer ... 1495
Total specular reflectance of rough metallic surfaces. R. E. Rolling and C. L. Tien ... 1719
Forced convective boiling heat transfer to hydrogen. J. W. H. Chi (EN) ... 150
Configuration factors for thermal radiation from isothermal inner walls of cones and cylinders. Darl D. Bien (EN) ... 155
Approximate re-entry velocity and heating equations. Louis S. Glover (EN) ... 156
A control device for supersonic combustion utilizing spectral intensity ratio. Allen E. Fuhs (EN) ... 269
Analytical prediction of nonequilibrium heat transfer around blunt-nosed bodies. George R. Inger (EN) ... 439
On the performance of a heat pipe. D. K. Anand (EN) ... 763
Heat transfer caused by combustion on a flat plate in supersonic flow. Wallace Chinitz and Louis Spadaccini (EN) ... 934
Simplified expressions for laminar heating rates on isothermal bodies. Michael J. Werle (EN) ... 946
Thermodynamic considerations in selecting materials for high-temperature environments. R. W. Baier, R. C. Oliver, and S. E. Stephanou (EN) ... 948
Effective emittance of an insulated louver system. Stanford Ollendorf (EN) ... 950
Thermal scale modeling of a modified prototype of the mariner spacecraft. F. Gabron, R. W. Johnson, and J. M. F. Vickers (EN) ... 1123
Stratification with bottom heating. G. C. Vliet (EN) ... 1142
Nozzle tube-wall temperature measurement by radiometric techniques. E. L. Geery, W. R. Thompson, J. H. Beveridge, and W. J. Helm (EN) ... 1144
Electron levels in the afterburning region of a rocket plume. Joseph L. Nardacci (EN) ... 1146
A critique on internal insulation materials for solid propellant rocket motors. V. F. Hribar (EN) ... 1434
Thermal behavior of charring cork. Robert C. Pfahl Jr. and David Dropkin (EN) ... 1540
An experiment study of liquid film cooling accomplished by dual slot injection. C. F. Warner and G. R. Guinn (EN) ... 1547
Flat plate turbulent heat transfer at hypervelocities. Paul D. Arthur, Howard D. Schultz, and Frederick L. Guard (EN) ... 1549
Including re-entry heating in rocket engine thermal analyses. Robert L. Glick and Stephen Fineman (EN) ... 1561
Effects of corner radius on stagnation-point velocity gradients on blunt axisymmetric bodies. Ernest V. Zoby and Edward M. Sullivan (EN) ... 1567
Thermal radiation characteristics of a specular walled groove. J. F. Parmer and J. A. Wiebelt (EN) ... 1678
Combustion pressure oscillations in an unmixed gas rocket motor. John M. Bonnell and John R. Osborn (EN) ... 1680
Thermal similarity study of a typical space vehicle element. Robert L. Young and Richard V. Shanklin III (EN) ... 1796
Relationships between average burning rate and average pressure in solid rockets. Fred H. Brock (EN) ... 1802
A method for the preliminary design of radiation heat-shield panels. Santos Shields (EN) ... 1805
Comment on "Measurement of aerodynamic heating of wind-tunnel models by means of temperature-sensitive paint." James L. Hunt and Robert A. Jones (TC) ... 767
Reply by author to J. L. Hunt and R. A. Jones. James Gaz (TC) ... 768
Comments on "Approximate re-entry velocity and heating equations." Richard T. Theobald (TC) ... 959
Erratum: Heat transfer in the vicinity of surface protuberances. True E. Surber (TC) ... 1152